

VERNON HILLS



HIGH SCHOOL

Dr. Ellen D. Cwick
Principal

Mr. Jonathan L. Guillaume
Assistant Principal

Mrs. Jean E. Aucutt
Assistant Principal

Dear Algebra II/Trigonometry Honors Student:

My name is Mrs. Tye-Spytek, and I will be your Algebra II/Trigonometry Honors teacher for the 2010/2011 school year. The purpose of this letter/packet is to introduce you to the course and to help make sure that you are prepared.

In this course, we will cover all of the Algebra II and Trigonometry concepts in one year. This will prepare you to take Advanced Math the following year, and Calculus the year after that. Also, because it is an honors course, we will study the concepts in more depth than one would in a regular course. Due to the challenges and the rigorous level of this course, it is extremely important that your Algebra I skills are strong.

In order to make sure that you are prepared for the Algebra prerequisites for Algebra II Honors, it is **strongly recommended** that you complete the attached packet. This collection of problems is a sample of the types of Algebra skills needed in order to be successful in Algebra II/Trigonometry Honors. Please dedicate some time this summer to review the concepts covered in this packet.

I hope you have a successful end to the school year and an enjoyable summer! I look forward to meeting you in August.

Sincerely,

Mrs. Tye-Spytek
jennifer.tye@d128.org
Mathematics Department

**Algebra II Honors
Summer Review**

Name: _____

1. Multiply: $(5x^3)\left(\frac{1}{6}x^7\right)(-7x^4)$

2. Multiply: $\frac{(7y^3)(2y^2)^3}{(y^4)^3} * (y^3)^0$

3. Multiply: $(2x^2y^{-5})(3x^{-3}y)\left(\frac{1}{3}x^{-1}y^3\right)$

4. Multiply: $(x^2 + 2x - 9)(2x^3 + 5x - 7)$

5. Factor: $405x^5 - 5xy^4$

6. Factor: $4x^4y - 11x^3y^2 + 6x^2y^3$

7. Factor: $2x^3 - 10x^2 + 3x - 15$

8. Simplify: $\frac{6}{x(3x-2)} + \frac{5}{3x-2} - \frac{2}{x^2}$

9. Simplify: $\frac{\frac{b}{a} - \frac{a}{b}}{\frac{1}{a} - \frac{1}{b}}$

10. Solve for x : $\frac{3}{2x-4} - \frac{5}{3x-6} = \frac{3}{5}$

11. Solve for x : $24x + 9 = -16x^2$

12. Solve for x : $5x^2 - 7x + 2 = 0$

13. Find the perpendicular bisector of segment \overline{AB} when $A = (-3, 7)$ and $B = (5, 3)$.

14. If $f(x) = 3x - 1$ and $g(x) = \frac{7x + 1}{2}$, find $f(g(-4))$ and $g(f(x))$.

15. Find the difference: $(x^3 - 3x^2 + 4xy^2 + y^3) - (7x^3 - 9xy^2 + x^2y - y^3)$

16. Solve: $x(x - 3) + 4x - 3 = 8x + 4 + x(3 + x)$

17. Solve: $x^2 = 49$

18. Simplify: a) $\sqrt{121}$ b) $-\sqrt{144}$

19. Simplify: $\sqrt{720}$

20. $5\sqrt{18} - 3\sqrt{112} - 3\sqrt{98}$

21. Simplify: $\frac{3x^2 + x - 2}{x^2 + 7x + 6}$

22. Simplify: $\frac{3 - x}{x^2 + x - 12}$

23. Solve the system using the substitution method:

$$3x - 2y = 12$$

$$\frac{3}{2}x - y = 3$$

24. Solve the system using the elimination method:

$$5x + 3y = 12$$

$$4x - 5y = 17$$

Hope you are having a great summer!! - Ms. Tye